

1 August 1998

**Maintenance of CAP Aircraft**

**CIVIL AIR PATROL AIRCRAFT MAINTENANCE MANAGEMENT**

This regulation establishes standard aircraft maintenance management for all Civil Air Patrol corporate owned aircraft and does not apply to member owned, leased, or borrowed aircraft. This regulation applies to all personnel operating and/or maintaining CAP corporate aircraft.

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1. Approved CAP Aircraft Markings & Paint Scheme.....A1-1
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Supersedes CAPR 66-1, 1 February 1989. (See signature page for Summary of Changes.)

OPR: HQ CAP-USAF/LGM

Distribution: In accordance with CAPR 5-4.

**1. Objectives.** CAP wing and region commanders are responsible for ensuring all CAP corporate-owned aircraft are maintained in a safe and operable condition. This is accomplished by ensuring that all CAP aircraft meet the airworthiness standards established by *Federal Aviation Regulations* (FARs) and CAP directives. Region and wing commanders must provide proper supervision, adequate control and management of CAP corporate-owned aircraft and all assets earmarked for aircraft maintenance and replacement.

## **2. Terms Explained:**

**a. Corporate Aircraft.** For the purposes of this regulation, corporate aircraft is defined as all CAP aircraft owned and registered with Federal Aviation Administration (FAA) in the name of Civil Air Patrol, Incorporated. For the purpose of this regulation, CAP Corporate aircraft does not include CAP member owned, leased, or borrowed aircraft. The term "aircraft" includes powered aircraft, gliders, and balloons.

**b. Airworthiness Standards.** To be considered airworthy, an aircraft must conform to a FAA original type certificate, the original type certificate as modified by an amendment or supplemental type certificate, and be issued a *FAA Certificate of Standard Airworthiness*. All CAP aircraft must be operated and maintained in accordance with applicable FARs and FAA-approved manufacturer data, as well as the manufacturer's recommended specifications and limitations to ensure continued airworthiness. CAP aircraft shall comply with all applicable FAA airworthy directives (ADs) and manufacturer's mandatory service bulletins.

**c. Major Maintenance, Repairs, and Alterations.** Major maintenance to the airframe, powerplant, propeller, and appliances normally require a FAA certified mechanic or repair station to perform the maintenance and return the aircraft to service. This includes painting, marking, modifications, alterations, reconfigurations, and 100-hour/annual inspections.

**d. Minor Maintenance:** Minor preventive maintenance, preservation, or replacement of small standard parts not involving complex assembly operations. This includes, but not limited to, normal servicing, replacement of minor parts and hardware. A person holding at least a private pilot certificate may approve an aircraft for return to service after performing preventive maintenance.

**e. Time in Service.** The aircraft time in service is the operating time recorded on the aircraft tachometer or *Hobbs* meter (aircraft logbook if recording meter is not installed).

**f. "Shall."** The term "shall" is used in an imperative sense and application shall be adhered to.

**g. "May."** The term "may" is used in a permissive sense to state authority or permission to do the act prescribed.

**3. General.** CAP aircraft shall be maintained in accordance with *FAR Parts 43 and 91*. Any change in the design of an airframe, powerplant, propeller, or appliance shall be accomplished in accordance with applicable FARs and acceptable methods, techniques and practices. CAP aircraft shall not be flown unless within the preceding 100 hours of time in service the aircraft has received an annual or 100-hour inspection and has been approved for return to service in accordance with FAR Part 43.

**4. Responsibilities.** Regions and wings are responsible for developing a Centralized Maintenance Management Program (CMMP) which includes procedures for the recognition and accounting of costs associated with the operation, maintenance, and depreciation of corporate aircraft. In wings with a larger number of aircraft, lower than wing level aircraft maintenance management and control may be established. Each region and wing shall publish a centralized maintenance management supplement to this regulation to provide specific guidance as to how the provisions of this regulation shall be implemented and controlled. Supplement shall include flying hour cost data determination required in paragraphs **14 a(1), a(2), b, and c**. Supplements shall be updated biennially and copies provided to CAP wing liaison office, region liaison office, and HQ CAP-USAF/LGM.

**5. Records.** Aircraft maintenance records and forms shall be maintained as required by FARs. Wing commanders and maintenance officers shall ensure all assigned aircraft are in full compliance with FAA Airworthy Directives (ADs) and manufacturer's mandatory service bulletins, as well as ensuring the aircraft maintenance logbooks are properly documented.

**6. CAP Restrictive Placards.** CAP aircraft will have all required placards installed IAW FAA directives and manufacturer's data. In addition, a placard containing the following statement shall be placed conspicuously in all CAP corporate aircraft, visible from outside the aircraft:

**a. "THIS AIRCRAFT IS THE PROPERTY OF THE CIVIL AIR PATROL AND WILL NOT BE USED FOR HIRE OR REWARD."** This placard will be white, protected, and 4 x 6 inches in dimension. Printing will be 6-inch block letters.

**b. "MAXIMUM CROSSWIND COMPONENT FOR THIS AIRCRAFT IS \_\_\_\_\_."** Each aircraft shall be placarded for maximum demonstrated crosswind velocity as published in the aircraft's *Pilot Operating Handbook (POH)*, checklist, or military technical order.

**c. "SEAT SLIP WARNING—ENSURE AIRCRAFT SEATS ARE POSITIVELY LOCKED BEFORE TAKEOFF AND LANDING."** All aircraft shall be placarded for seat slippage warning.

NOTE: These placards may be ordered through the CAP Supply Depot, Amarillo, Texas.

## 7. Marking and Painting of Aircraft:

**a. Marking.** All CAP aircraft shall be marked in accordance with *FAR Part 45*. The approved CAP aircraft markings are the 8- or 11-inch diameter CAP seal, CAP wing designation in 4-inch dark blue block letters, and upper wing decals as shown in Attachments 1. These emblems and decals are available through the CAP Supply Depot, Amarillo, Texas.

**b. Painting.** When CAP aircraft are in need of complete repaint, it will be painted in accordance with the approved color scheme as provided in Attachment 1. Aircraft will not be repainted solely to conform to the CAP paint/color scheme. To promote camaraderie, region commanders may approve additional authorized CAP aircraft markings and wing logo/tailflash.

**8. Aircraft Inspections.** The maintenance program shall be based on aircraft inspections conducted at specified intervals and prompt correction of any discrepancies found during these inspections. Aircraft maintenance officers shall make periodic checks to ensure all aircraft inspections are performed in accordance with existing directives. Inspection requirements for all CAP aircraft are:

**a. 50-Hour.** A 50-hour inspection shall be performed in accordance with applicable aircraft service manual. This inspection normally consists of engine oil and oil filter change, and minor areas of inspection shall be performed after 50 hours time in service. Ten percent (5 hours) overfly is authorized only to reach a designated place of inspection. The excess time to reach the designated place of inspection will be included in computing the next 50-hour inspection due time.

**b. 100-Hour.** A 100-hour inspection shall be performed and the aircraft returned to service in accordance with *FAR Part 43*. An aircraft shall not be operated unless, within the preceding 100 hours time in service, the aircraft has received an annual or 100-hour inspection and been approved for return to service in accordance with *FAR 43*, or has received an inspection of issuance of an airworthiness certificate in accordance with *FAR Part 21*. Ten percent (10 hours) overfly is authorized only to reach a designated place of inspection. The excess time to reach the designated place of inspection will be included in computing the next 100-hour inspection due time.

**c. Annual Inspection.** The annual inspection shall be performed and the aircraft returned to service in accordance with *FAR Part 43* by a FAA certified mechanic holding an inspection authorization. An aircraft shall not be operated unless an annual inspection has been performed within the preceding 12 calendar months. In addition to the annual inspection, paint touch-up will be accomplished as required and other preventive

maintenance will be performed which would enhance the appearance of the aircraft and maintain airworthiness. Overfly is not authorized. Annual inspections should also be accomplished if the following conditions exist:

(1) The annual inspection is due within 3 months at the time a 100-hour inspection is due.

(2) The annual inspection is due within 3 months at the time an aircraft is down for an engine change or extended major maintenance.

**d. Calendar Inspections.** The following components are to be inspected/checked and logbooks updated at prescribed intervals IAW *FAR 91*:

(1) Pilot Static/Altimeter check. every 24 months

(2) Transponder check every 24 months

(3) VOR check current within 30 days of IFR mission

(4) ELT Battery Check/Replacement checked during annual inspection and replaced at manufacturer's recommended life cycle

**e. Periodic Inspections.** The aircraft maintenance officer or representative shall inspect all CAP aircraft periodically to ensure assigned aircraft are airworthy and standardized in accordance with applicable FARs and HQ CAP directives. This inspection will be performed using CAPF 71, *CAP Aircraft Inspection Checklist*.

**9. Organizational Maintenance.** This consists of preventive maintenance performed by the user, operator, or personnel specifically assigned to maintain the aircraft. Preventive maintenance includes routine care, such as cleaning, servicing, replacement of minor parts and hardware, preflight and postflight inspections.

**a. Oil Changes.** Oil and oil filters shall be changed and the engine logbook annotated in accordance with the following schedule:

(1) 25-hour interval oil change and screen cleaning for all engines without oil filters

(2) 50-hour interval oil change and filter replacement for all engines with oil filters

(3) A total of 6 months maximum between changes for both systems listed under (1) and (2)

(4) Engine break-in oil change for overhauled and remanufactured engine shall be in accordance with engine manufacturer's recommendation.

**b. Corrosion Control.** Special emphasis shall be placed on corrosion prevention to ensure safety of flight and extend the aircraft service life. Perform clear water rinse after flights below 200 feet of any body of salt water or dry salt beds to reduce corrosion. Aircraft shall be washed at 6-month intervals to prevent corrosion and enhance the aircraft's appearance. Aircraft located in coastal and corrosion prone areas will be treated with corrosion preventive compound (CPC), i.e., ACF-50 annually. Additional treatments may be required as the ACF-50 compound loses its effectiveness (usually detected by a white chalky film). Aircraft located in low

corrosion areas will be treated biennially. HQ CAP will not be responsible for corrosion damage on aircraft not treated with ACF-50.

**c. Aircraft Environmental Protection.** When available, aircraft windshield covers should be installed when aircraft is not in use to protect windscreen, interior, and component damage from the environmental elements. Pitot tube covers and engine plugs shall be installed when aircraft is not in use to preclude the infestation of bird nests, dirt daubers, etc.

**d. Aircraft Security.** All aircraft shall be locked, securely tied down, and wheels chocked when not in use. Avionics and control lock shall be installed when the aircraft is hangared or parked on the ramp.

**e. Airworthy Directives.** All aircraft shall reflect the current status of applicable ADs by including an AD compliance listing in aircraft logbooks. HQ CAP-USAF/LGM receives all FAA ADs and manufacturers' mandatory service bulletins and will mail or fax the documents to the region LG for dissemination to the applicable wings for compliance. After compliance, the wing maintenance officer will report the AD and service bulletin findings to HQ CAP-USAF/LGM.

**f. Engine Cowling.** During preflight and postflight inspections, the engine cowling should be inspected for proper fit, security, and contour. Defective hardware will cause the cowling to separate in flight, resulting in catastrophic damage to the aircraft and injury to personnel.

**g. Cannibalization.** Cannibalization is defined as removing parts from an aircraft in heavy or extended maintenance to replace defective parts in another aircraft to maintain airworthiness. HQ CAP prohibits the cannibalization method of maintaining aircraft.

**10. Engine Management Program (EMP).** The engine management program consists of engine replacement schedule, engine top overhaul or major repairs, propeller and prop governor overhaul, engine Spectrometric Oil Analysis Program (SOAP) and preventive maintenance. This program requires proper management to ensure all CAP aircraft are maintained in the highest of airworthy and safety standards, as well as reducing the amount of time the aircraft is out of commission.

**a. Engine.** Engines shall be replaced with a remanufactured engine at the manufacturer's recommended TBO regardless of engine's performance or integrity. Flying beyond the manufacturer's recommended TBO is not authorized. One hundred sixty HP Cessna 172 engines will be replaced with 180 HP engines through attrition. Engine fluid carrying hoses, from the firewall forward, will be replaced every 5 years or at engine overhaul or replacement, whichever comes first. The only exception is the Cessna 172R, which will be replaced every 10 years or

engine overhaul or replacement, whichever comes first.

**b. Propeller and Prop Governor.** Propellers and prop governors shall be overhauled at the manufacturer's recommended TBO. Flying beyond the manufacturer's recommended TBO is not authorized.

**c. Engine SOAP (Spectrometric Oil Analysis Program).** Engine oil samples shall be taken every 50 hours, prior to oil and oil filter change. A copy of the analysis report will be maintained in the aircraft maintenance log to monitor trends in engine wear/breakdown conditions. Sample kits can be ordered through the CAP Supply Depot.

## 11. Required Equipment:

**a. Aircraft Shoulder Harness.** All Corporate aircraft (except balloons) must be equipped with shoulder harnesses at the pilot and co-pilot positions. It is strongly recommended that all seats be equipped with shoulder harnesses. Newly assigned aircraft shall have shoulder harnesses installed NLT 90 days after assignment. Failure to comply shall result in automatic grounding of the aircraft. If shoulder harnesses cannot be installed as prescribed above, the aircraft will be sold, unless a waiver is granted from HQ CAP-USAF/LG.

**b. Aircraft Fire Extinguisher.** A serviceable fire extinguisher, appropriate for aircraft use, will be permanently mounted in the cockpit of all CAP aircraft.

**c. Secondary Seat Stops.** All Cessna aircraft (except Cessna 172R) will have secondary seat stops installed on the pilot's right seat rail to prevent seat slippage. The Cessna 172R seat rails were redesigned and do not require a secondary seat stop.

**d. Avionics and Control Lock.** Avionics control locks will be installed on all aircraft not in use to prevent theft of high-cost avionics.

**e. Cabin Door Hinge Pins.** Only manufacturer's authorized hinge pins will be installed in CAP aircraft. The use of cotter pins, quick release pins, nails, etc., is prohibited.

**f. Cargo Tiedown or Cargo Net.** Cargo will be properly secured using a safety belt or other tie-down method having enough strength to eliminate the possibility of shifting during operation. Cargo net is recommended for the cargo compartment.

**g. Carbon Monoxide Detectors.** For safety, 12- to 18- month disposable carbon monoxide detectors will be installed in all CAP aircraft. The disposable detectors will be replaced annually.

## 12. Aircraft Major Maintenance Reimbursement.

**a.** Strict guidelines must be adhered to for proper use and control of Air Force appropriated funds. HQ CAP will reimburse only those major maintenance items/actions listed below:

(1) Engine changes / engine top-overhauls /

major cylinder repairs

(2) Propellers and prop governor overhauls  
(3) New Avionics Package upgrade / individual radio component repair and replacement (individual avionics or instrument component repair or replacement are not reimbursable)

(4) Exterior paint (pictures required)

(5) Interior refurbishment (pictures required)

**b. Eligibility for reimbursement.** For an aircraft to be eligible for reimbursement, a copy of the following must be on file at HQ CAP-USAF/LGM for reimbursement:

(1) Current CAP Form 37, *Shipping and Receiving Document*

(2) Aircraft photographs reflecting the current condition

(a) from spinner to tail

(b) interior

(c) avionics panel

**c. Authorized or Approved Reimbursement.** Reimbursement for major maintenance is initiated by the wing maintenance officer or wing commander, using the *Aircraft Major Maintenance Reimbursement Request Form* shown on Attachment 2. Authorized or approved major maintenance items will have a HQ CAP control number assigned to control HQ CAP expenditures. Maintenance shall not be performed prior to being issued the control number from HQ CAP-USAF/LGM. Once authorized, LGM will fax the control to the requester and will be valid for 90 days. After the 90-day period, the control number will be automatically voided. The maintenance actions shall be accomplished expeditiously and the original paid invoice mailed to HQ CAP-USAF/LGM for payment.

**d. Items Not Reimbursable.** The following items or maintenance actions are not reimbursed by National Headquarters and will be funded by region or wing funds.

(1) Major maintenance items not listed in Paragraph 12

(2) Minor or preventive maintenance

(3) Any major maintenance performed without prior authorization or approval from HQ CAP-USAF/LGM

**13. Automotive Fuel (MOGAS).** The use of automotive fuel (MOGAS) in corporate aircraft is prohibited.

**14. Financial Accounting.** To assure availability of funds for corporate aircraft maintenance, aircraft replacement, and prevent depletion of the corporate aircraft inventory, regions (with aircraft assigned) and wings will, in accordance with CAPR 173-2, *Financial Procedures for CAP Regions and Wings* and CAPR 173-3, *Payment for Civil Air Patrol Support* establish an account for recording the receipts and disbursements of funds associated with aircraft maintenance and depreciation. The system of payment or credit, including the amount, for each corporate aircraft flying hour will be designated by the region or wing.

**a. Determining Flying Hour Costs.** The high cost of maintaining an operational fleet of aircraft necessitates sound management at all levels of command. Each wing/region should set a goal to get the most from their assigned aircraft within the restrictions of available income, whether this income is derived from federal funds, state funds, or private donations. All routine maintenance costs accrued in maintaining CAP aircraft are the responsibility of the wing or region to which the aircraft is assigned. Each wing/region will establish an hourly charge for corporate aircraft that will be used to cover all routine maintenance costs.

(1) Two kinds of costs must be considered when evaluating aircraft operations to determine what hourly charge should be established for CAP members:

(a) Fixed costs are those costs that occur regardless of the number of hours flown. For example, depreciation, insurance (liability and hull), cost of hangar or tie-down, annual inspection, etc.

(b) Variable costs are those costs that result directly from flying and increase proportionately with increases in flying hours. For example, costs for engine repairs, 100-hour inspection, fuel, oil, etc.

(c) Charges per flying hour, wet/dry, to CAP members for each type of aircraft assigned.

(2) To compute the hourly cost of flying an aircraft, divide the total annual fixed costs by the estimated total number of flying hours for the year and add to this the variable costs for flying the aircraft 1 hour. Cost figures available from the manufacturers may assist in this determination. Every effort must be made to ensure all costs are included in the computation and that the estimated flying hours are realistic figures which will be attained or exceeded.

**b. Establishing Flying Hour Charges.** Based on their cost factors, each region/wing will establish CAP member flying rates by aircraft types and missions. Accurate records of aircraft engine hours by mission category will be maintained by the units and submitted to the wings monthly. Many wings receive varying amounts of support from state funds, therefore, flying hour charges may vary considerably. Wings will establish a system that provides credit to a unit for wing directed and other missions for which payment cannot be expected. The amount and type credit will be determined and specified by the wing. A minimum quarterly payment for aircraft should be set whereby units will be encouraged to fly each aircraft at least the corporate minimum flying hours. The minimum payment might be based on the corporate minimum of 200 flying hours per year times the established hourly rate with the unit negotiating for adjustment when an aircraft is out of commission for 30 days or more during one quarter.

**c. USAF Reimbursement Funds.** Documentation for reimbursement of maintenance funds for Air Force authorized missions will be completed in accordance with CAPR 173-3.

**15. Storage and Tie-Down.** Region and wing commanders are responsible for ensuring that all possible preventive measures are taken to safeguard corporate aircraft from wind and weather damage. Whenever possible, aircraft should be hangared. Aircraft parked in the open shall be tied down at the three approved tie-down points and securely chocked to prevent wind damage. Additionally, control locks shall be installed. Aircraft in extended outside storage shall be tied at four points (nose, wings, and tail).

**a. Tie-Down Anchors.** There are many methods of anchoring tie-downs. Satisfactory tie-down anchors may be constructed as shown in Attachment 3. Variations may be necessary when local conditions dictate.

**b. Tie-Down Ropes.** Tie-down ropes with tensile strength of 3,000 pounds or greater shall be used. Nylon or dacron tie-down ropes are recommended. Refer to Attachment 3 for rope specifications.

**c. Tie-Down Chains.** Chains shall not be used directly from aircraft mooring points to an anchor point because of excessive impact loads on wing spars. When chain tie-downs are used, they shall be attached to wire rope anchors as depicted in Attachment 3. Wire rope anchors are constructed of two continuous lengths of parallel wire rope passed through the anchor points. The tie-down chains should be attached to the wire rope with round pin galvanized anchor shackles. This allows the chains to float along the wire rope to reduce impact loads. Chain links used for tie-down must be at least 5/16-inch steel and a proof load of 2,720 pounds and breaking load of 5,440 pounds. All fittings must be equally as strong and chains should be secured without slack.

**d. Spoilers.** In high wind areas, use of sandbags or spoiler boards as described in *FAA Advisory Circular 20-35C* is recommended.

**16. Transfer and Disposal of Aircraft.** When aircraft condition and/or utilization falls below desired standards, the wing commander, region commander, or national headquarters may reassign or dispose of the aircraft to ensure maximum conservation and use of CAP resources (reference CAPR 67-4, *Acquiring, Reporting, and Disposing of Corporate Aircraft*). The corporate minimum flying hour standard is 200 hours per year per aircraft.

**Wing Logo and Tail Flash.** Aircraft being reassigned to another wing will have all wing logos and tail flash markings removed, if installed, prior to transfer.

#### 17. References:

- a. *FAR Parts 43, 91, and 135*
- b. *Advisory Circulars (ACs):*
  - (1) *AC 20-5G, Plane Sense*
  - (2) *AC 20-35C, Tie-Down Sense*
  - (3) *AC 39-7C, Airworthiness Directives*
  - (4) *AC 43-9B, Maintenance Records*
- c. General Aviation Inspection Aids
- d. Applicable *Manufacturer's Maintenance Manuals* and overhaul instructions
- e. Air Force or other Department of Defense agencies' applicable technical orders
- f. *FAA airworthiness directives* and manufacturers' service bulletins



DAVID J. MILLER  
Chief, Administration

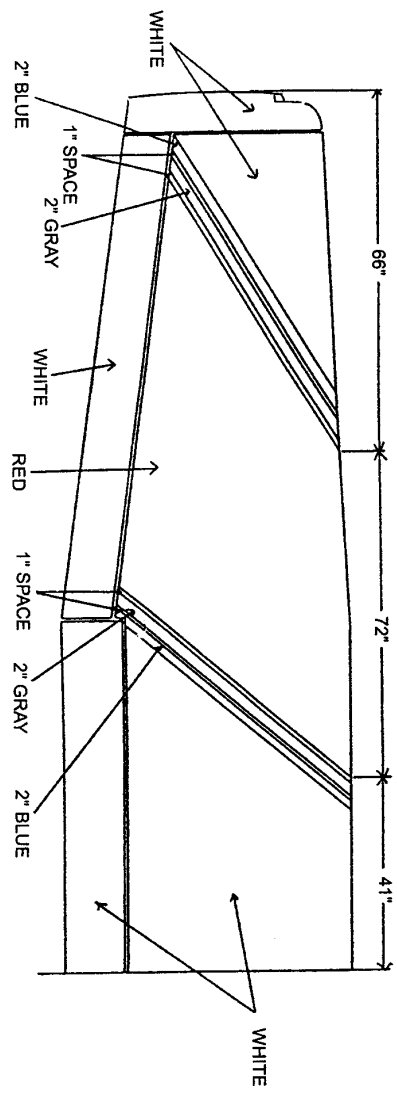
PAUL J. ALBANO, SR.  
Colonel, CAP  
Executive Director

JAMES C. BOBICK  
Brigadier General  
National Commander

#### SUMMARY OF CHANGES

Addition of: a) minor maintenance clarification, b) additional requirement of 50-hour inspection, c) calendar inspections, d) corrosion control program, e) environmental protection, f) aircraft security, g) airworthiness directive compliance, h) engine cowling requirement, i) parts cannibalization policy, j) engine management program, k) required equipment, l) major maintenance reimbursement policy, and m) change of corporate minimum flying hours per year. Deletes: a) Air Force base or depot assistance policy, b) tie-down equipment inspection requirement, and c) modified seat-kit requirement.

Bars in the margins indicated updated information.



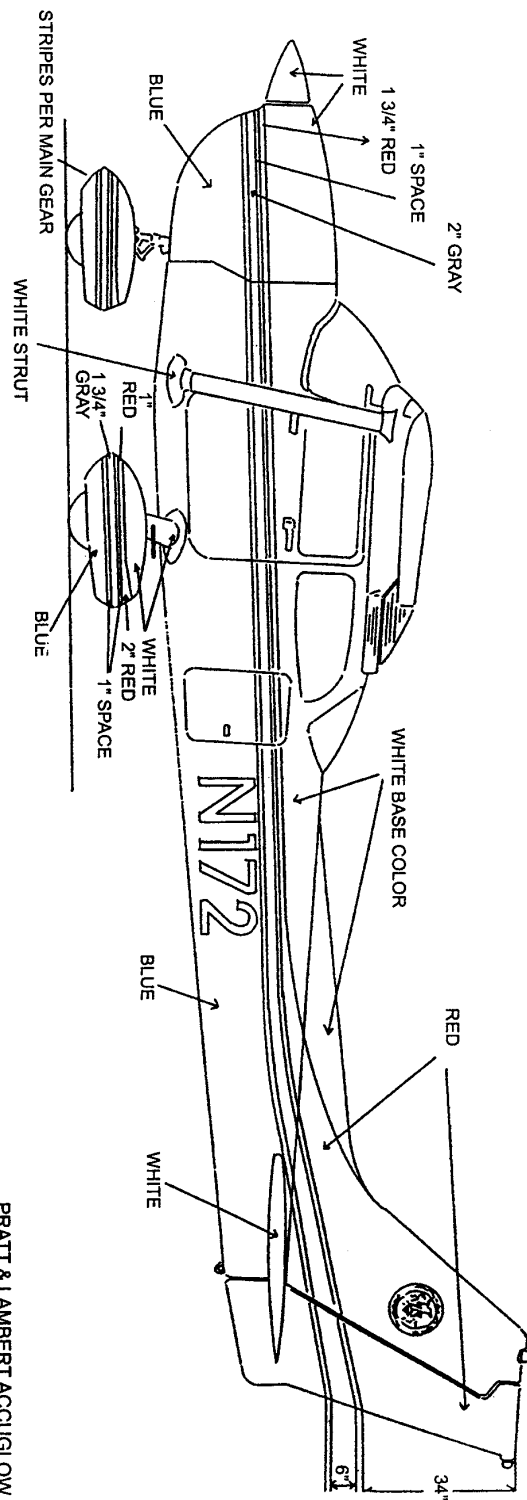
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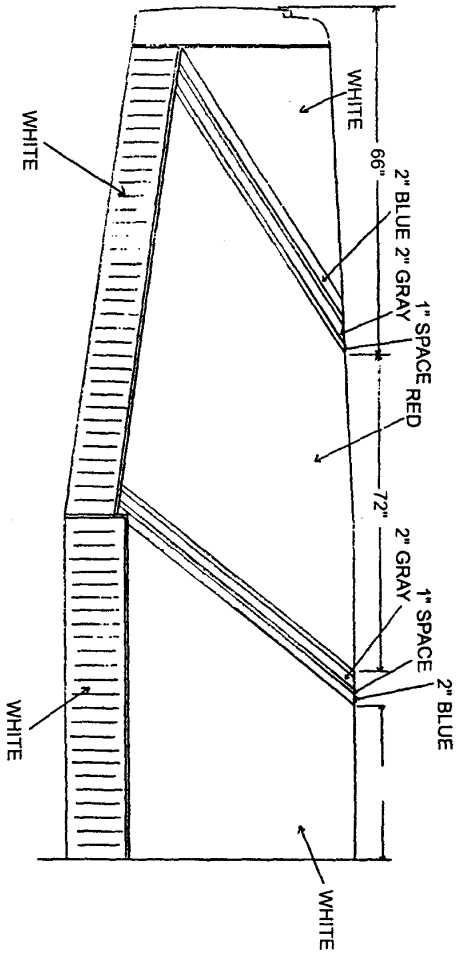
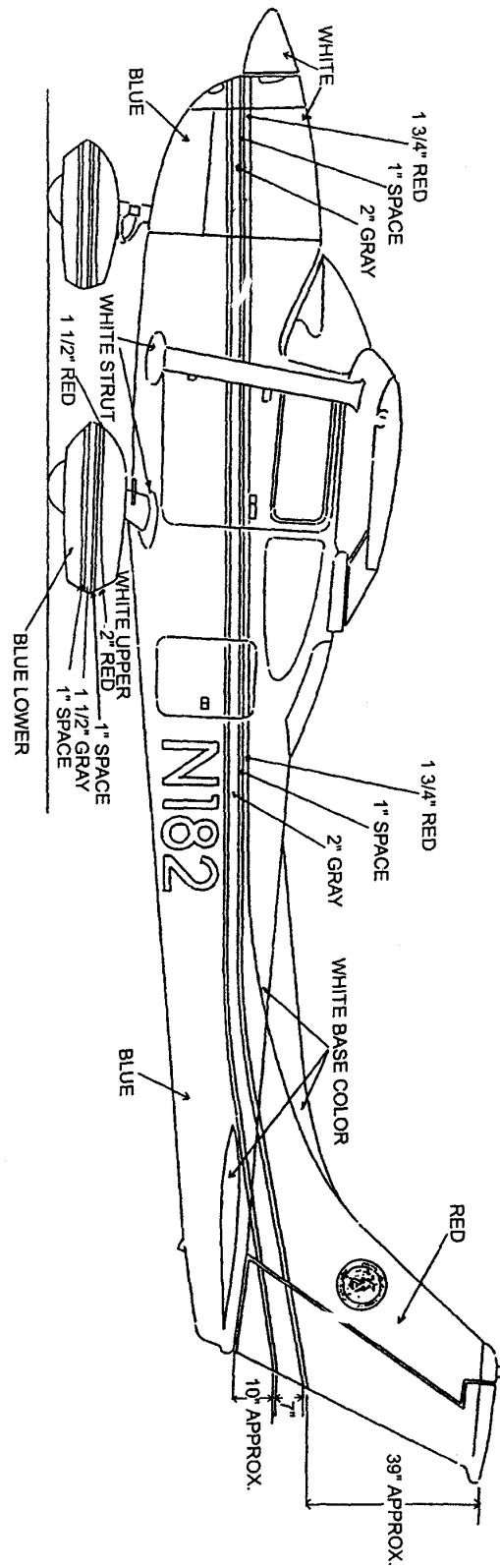
PRATT & LAMBERT ACCUGLOW

WHITE - WP 150  
GRAY - WA 67

DUPONT IMRON

BLUE - 24160  
RED - 6543U





**PRATT & LAMBERT ACCU-GLOW**

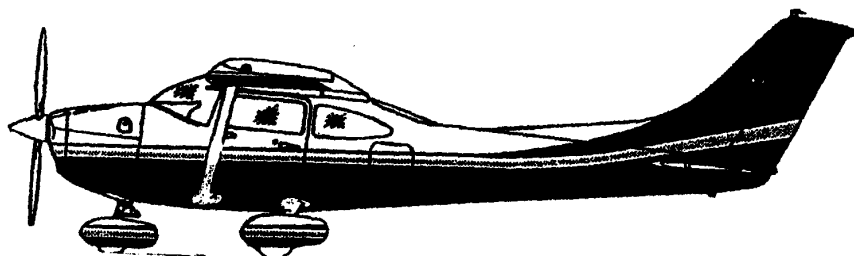
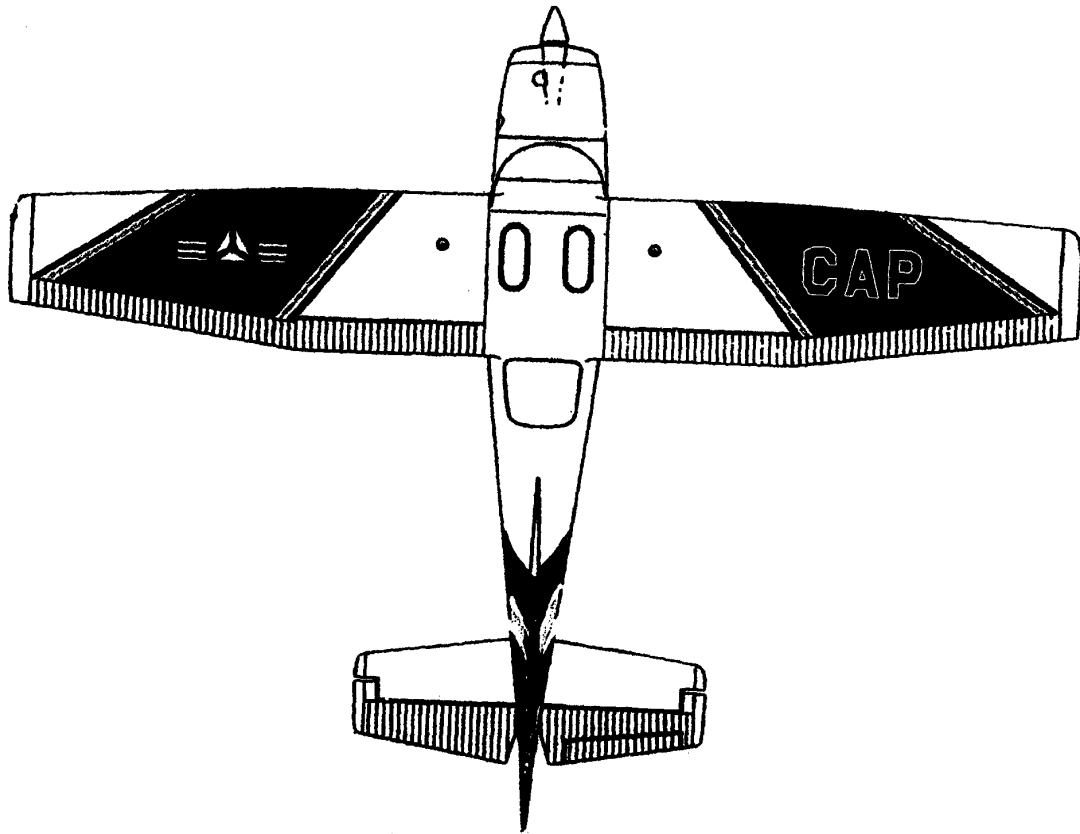
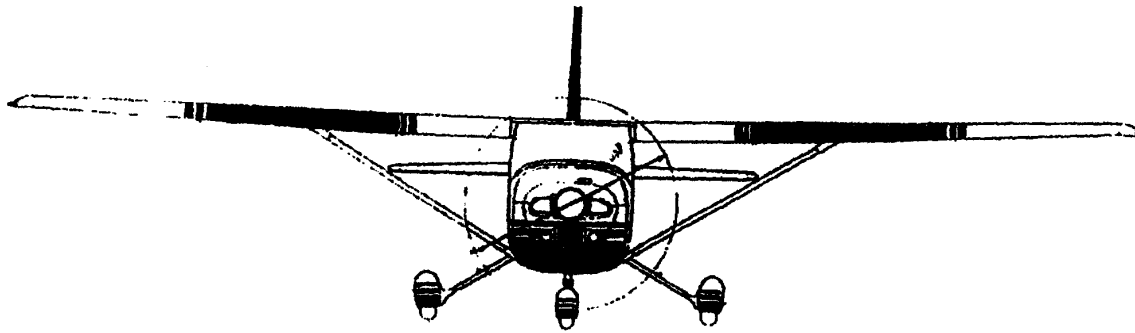
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**DUPONT IMRON**

BLUE - 24160  
RED - 6543U

NOTE: SPACE BETWEEN ALL STRIPES  
IS 1" BASE COLOR WHITE.







## Aircraft Major Maintenance Reimbursement Request Letter



HEADQUARTERS MICHIGAN WING CIVIL AIR PATROL  
UNITED STATES AIR FORCE AUXILIARY  
29553 George Avenue Building 303  
SELFRIDGE ANG BASE MICHIGAN 48045-5001

August 7, 1998

MEMORANDUM FOR HEADQUARTERS CAP-USAF/LGM

FROM: HQ MI WG CAP/CC

SUBJECT: Aircraft Major Maintenance Reimbursement Request

Make Payment to: \_\_\_\_\_ Wing Vendor: \_\_\_\_\_

Tail Number: \_\_\_\_\_ Make/Model/Year: \_\_\_\_\_

Airframe Hours: \_\_\_\_\_ Engine Hours: \_\_\_\_\_

| <u>Category Work</u>                    | <u>Estimated Cost</u> | <u>Category Work</u>                                    | <u>Estimated Cost</u> |
|---|-----------------------|---|-----------------------|
| Engine Replacement:                     | _____                 | Interior Rehab (Send current pictures):                 | _____                 |
| Engine Top Overhaul:                    | _____                 | Radio Repair/Replacement (Radio Exchange Program Only): | _____                 |
| Cylinder(s) # _____ Replacement:        | _____                 | New Avionics (Describe) _____:                          | _____                 |
| Propeller/Governor Overhaul:            | _____                 | Other _____:  | _____                 |
| Aircraft Paint (Send current pictures): | _____                 |   |                       |

Every effort should be made to utilize the CAP supply depot. Please contact the Depot for comparable quotes (1-800-858-4370). Items purchased through CAP supply Depot can be billed directly to National Headquarters only with control number approval. **Submit estimates from vendor with this form for approval.**

\_\_\_\_\_  
Signature (Wing Commander/Maintenance Officer)

\_\_\_\_\_  
Phone Number

\_\_\_\_\_  
Fax Number

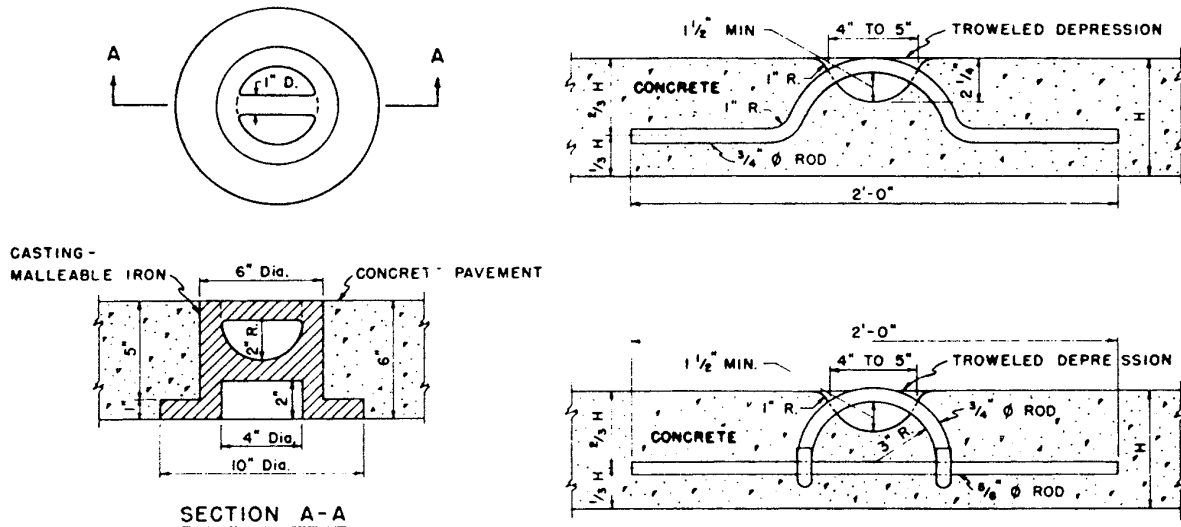
**GOOD FOR 90 DAYS**

**FOR HQ CAP-USAF USE ONLY**

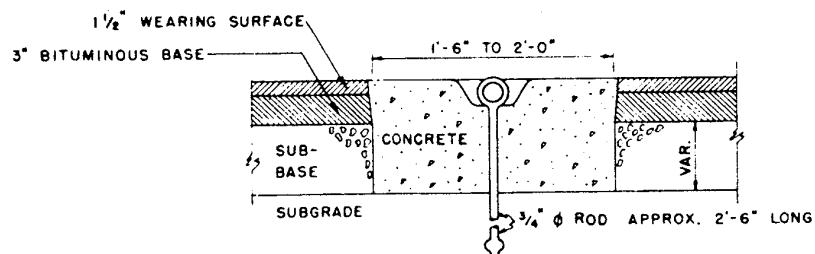
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**Issue Date:** \_\_\_\_\_

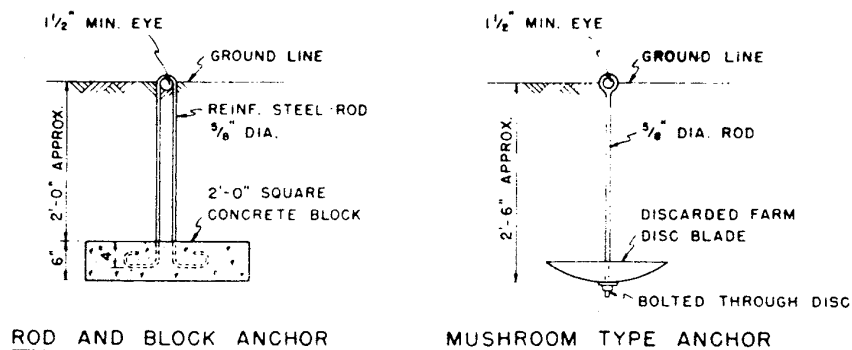
## AIRCRAFT TIE-DOWN ANCHORS FOR CONCRETE PAVED AREAS



## AIRCRAFT TIE-DOWN ANCHOR FOR BITUMINOUS PAVED AREAS

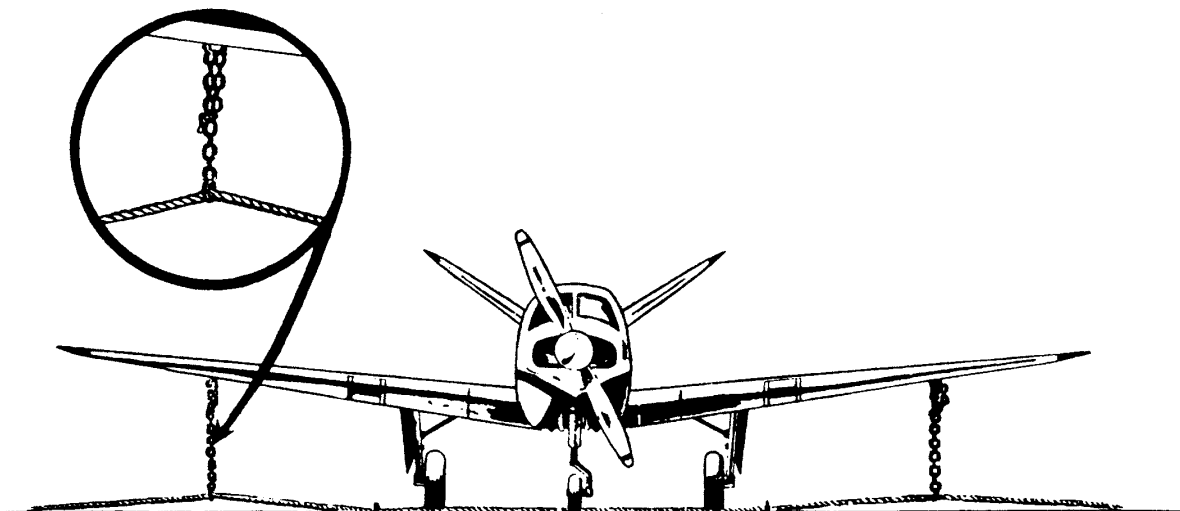


## AIRCRAFT TIE-DOWN ANCHORS FOR TURFED AREAS



## COMPARISON OF TIE-DOWN ROPES

| Size<br>in<br>Inches | Manila                         | Nylon                          | Dacron                                    |   | Yellow Polypropylene                      |   |
|----------------------|--------------------------------|--------------------------------|---|---|---|---|
|                      | Minimum<br>Tensile<br>Strength | Minimum<br>Tensile<br>Strength | (Twist)<br>Minimum<br>Tensile<br>Strength | (Braid)<br>Minimum<br>Tensile<br>Strength | (Twist)<br>Minimum<br>Tensile<br>Strength | (Braid)<br>Minimum<br>Tensile<br>Strength |
| 3/16                 | -                              | 960                            | 850                                       | 730                                       | 800                                       | 600                                       |
| 1/4                  | 600                            | 1500                           | 1440                                      | 980                                       | 1300                                      | 1100                                      |
| 5/16                 | 1000                           | 2400                           | 2220                                      | 1650                                      | 1900                                      | 1375                                      |
| 3/8                  | 1350                           | 3400                           | 3120                                      | 2300                                      | 2750                                      | 2025                                      |
| 7/16                 | 1750                           | 4800                           | 4500                                      | 2900                                      | -   | -   |
| 1/2                  | 2650                           | 6200                           | 5500                                      | 3800                                      | 4200                                      | 3800                                      |
| 5/8                  | 4400                           | 10,000                         | -   | -   | -   | -   |
| 3/4                  | 5400                           | -                              | -   | -   | -   | -   |
| 1                    | 9000                           | -                              | -   | -   | -   | -   |



The diagram shows a vertical anchor using straight link coil chain for connection between the wire rope and aircraft wing. One link on the free end is then passed through a link of the taut portion and a safety snap is used to keep the link from passing back through. Any load on the chain is borne by the chain itself instead of the snap.